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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/581,138	05/31/2006	Dwight K. Buckle	19350-103922	2005
28886	7590	02/19/2010		
CLARK HILL, P.C. 500 WOODWARD AVENUE, SUITE 3500 DETROIT, MI 48226				
EXAMINER				
LUK, EMMANUEL S				
ART UNIT		PAPER NUMBER		
1791				
MAIL DATE		DELIVERY MODE		
02/19/2010		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/581,138

**Applicant(s)**

BUCKLE ET AL.

**Examiner**

EMMANUEL S. LUK

**Art Unit**

1791

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 September 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 and 8-22 is/are pending in the application.
- 4a) Of the above claim(s) 1-5 and 14-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 6 and 8-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/06)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

1. Claims 1-6, and 8-22 are pending, claims 1-5 and 14-22 are non-elected and withdrawn, claim 7 is canceled by the applicants. Claims 6 and 8-13 have been examined as shown below.

***Claim Rejections - 35 USC § 103***

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 6, 8, 12, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Potter (20020195736) in view of Carmi (3548451) and Hirose (JP-2003001634) and Wright (5776521).

Potter teaches a first and second mold portions that form a mold cavity including a fill plate with inlet for introducing the expandable plastic material into the mold cavity.

Potter fails to teach a cavity pull system with a pin forming at least one out of die draw feature and the rack and pinion arrangement with the rack pin being at a right angle to the cylinder shaft.

Carmi teaches an apparatus with a forming mold 16 with mold cavity 14 for expanded plastic articles (such as polystyrene particles), the apparatus having a rod 22 with head 23 that is moved (see Col. 5, lines 25-41).

Hirose teaches a molding device including a rack and pinion 60, 70 that are used to actuate a rack 50 that drives the movement of an undercut mold 40. The undercut

mold being the same structure as the claimed pin is actuated into the claimed mold. It is noted that the rack and pinion arrangements are well known in the mechanical arts for arrangement of a rack pin engaging a pinion that engages a cylinder shaft, the rack pin being at a right angle to the cylinder shaft, for example, Wright teaches such an arrangement with the rack pin 76 that moves in a first direction, the pinion 68 that engages with the rack pin and the pinion able to engage with a mold core 20 with sleeve 46 (that is similar to the cylinder shaft), as seen in the Figures, the rack pin is substantially at a right angle to the cylinder shaft. This arrangement is well known that one skilled in the art as an arrangement of known parts can accommodate the rack and pinion arrangement of such as Hirose for to allow for movement of the claimed pin.

It would have been obvious for one of ordinary skill in the art to modify Potter with a movable rod as taught by Carmi that is similar to the claimed pin for forming a feature and substituting the movement drive of Carmi with the rack and pinion as taught by Hirose because it allows for a simpler movement drive that allows for movement of the undercut portion in the mold and for removing the portion from the molded article and with the arrangement of the rack pin at a right angle to the cylinder shaft as taught by Wright so that it allows for arrangement of the cylinders in rows and thus allowing for operation of multiple cylinders simultaneously and since it is a known alternate arrangement of the rack and pinion for engaging a movable core within a molding apparatus.

4. Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Potter (20020195736) in view of Carmi and Hirose (JP-2003001634) and Wright as applied to claim 6 above, and further in view of Maloney (4114759).

Potter in view of Carmi and Hirose fails to specifically teach the mold elements being made from brass or stainless steel.

In regards to the metal materials of the mold including brass and stainless steel, these are well known metals used in constructing tools and it would have been obvious for one of ordinary skill in the art to incorporate these materials for the mold and which is clearly taught by Maloney for the production of foamed polystyrene particles that can be molded by "molds made from aluminum, stainless steel, or brass" (see Col. 4, lines 32-34), the foamed polystyrene particles being molded and formed by heat including steam (Col. 4, lines 28-30). Therefore, it would have been obvious for one of ordinary skill in the art to modify Potter in view of Carmi and Hirose with the mold parts formed from stainless steel or brass as taught by Maloney as these are well known components used in molds that utilize a steam chest for heating and forming the foamed polystyrene particles.

### ***Response to Arguments***

5. Applicant's arguments filed 9/28/09 have been fully considered but they are not persuasive. Applicants have argued concerning the arrangement of the rack pin and the cylinder shaft as per the amendment of claim 6. It is noted however that this particular arrangement of a rack pin being at a right angle with the shaft (the movable

portion such as a core or ejector or pin) is known in the arts. This particular arrangement would be known in the arts as seen by the prior art references such as Wright, such that one skilled in the art would realize and incorporate such designs for operating a movable core, pin, or ejector in the molding arts.

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO 892 form, the following references: US 6450797, US 6872350, US 7157037, all teach known rack and pinion arrangements with right angles.

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to EMMANUEL S. LUK whose telephone number is (571)272-1134. The examiner can normally be reached on Monday-Fridays from 9 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yogendra N. Gupta can be reached on (571) 272-1316. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Yogendra N Gupta/  
Supervisory Patent Examiner, Art Unit 1791

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